Elite Athletic Performance and Programming

Latest Research in Running Mechanics, Speed Development & Agilities
Presented by: Dr. Ken Clark

This presentation looks at the results of current research in running mechanics, agilities, and speed development to provide practical science-based insights for enhancing athletic performance. Dr. Clark will address:

- Linear speed science + drills and applications
- Change of direction and agility
- Strength training considerations

Strength Training to Improve Connective Tissue Health & Performance
Presented by: Dr. Keith Baar

During this presentation, Dr. Keith Baar will discuss the following:

- Role of collagen synthesis in muscle strength
- Length of work (short bouts with 6-8 hours in between)
- Importance of load (tensional load is the key)
- Role of movement velocity on health and performance
- Dietary collagen to support adaptation

Professor Keith Baar received his PhD from the University of Illinois where he discovered the molecular signal that causes load-induced muscle hypertrophy. Keith is currently the head of the Functional Molecular Biology Laboratory (FMBLab) at the University of California Davis.

Over the last 15 years, Keith has worked with elite athletes, as the scientific advisor to Chelsea Football Club, USA Track and Field, Paris Saint-Germain Football Club, British Cycling, The English Institute of Sport, Leicester Tigers Rugby, and the Denver Broncos. He also spent time as an assistant strength coach with the University of Michigan football team where he was an undergraduate. Keith's current work is focused on how loading and nutrition alter tendon/ligament/ECM health and performance.

Fascia Training: A Whole System Approach
Presented by: Bill Parisi

An in-depth look at the emerging science behind this newly discovered system and the important role it plays in athletic training.

In the process of writing his recent book Fascia Training: A Whole-System Approach, Bill explored the latest research and interviewed many of the top experts in the field of fascia training and science, including; Thomas Myers, founder of Anatomy Trains, "Dr. Back Mechanic," Stuart McGill Ph.D., Institute of Motion founder, Michol Dalcourt, and Olympic trainer, Dan Pfaff. In his live presentation, Bill details the evidence-based findings of the book in a clear accessible way.

- Learn the fascinating story of why the fascia system is only just now being discovered thanks to modern imaging technology and research
- Discover how important it is to athletic performance and injury resilience
- Identify effective fascia-based training techniques
- Understand the concept of biotensegrity in human motion
- Hear real-life case studies of fascia training in practice with athletes at all levels

Fascia Training to Optimize Performance
Presented by: Dr. Robert Schleip & Michol Dalcourt

Michol Dalcourt is an internationally recognized expert in human movement and performance. He is the founder and director of Institute of Motion (InstituteofMotion.com); inventor of the fitness tool ViPR (ViPRfit.com), and co-founder of PTA Global (PTAGlobal.com). He has written numerous articles on human design and function, developed a series of performance videos, and created the RMA athletic model for high-performance training.

Michol is an adjunct professor at the University of San Francisco, and an instructor at the Northern Alberta Institute of Technology in Edmonton, Alberta. As a trainer, he has worked with general clientele and athletes at all levels including college pitchers, NHL athletes, National Lacrosse League athletes, and Olympic gold medalists. He received his exercise science education from the University of Alberta, and holds a variety of certifications including CFC accreditation from the Canadian Society for Exercise Physiology, and Personal Trainer Specialist from the Canadian Association of Fitness Professionals.

Robert Schleip is a human biologist and psychologist. His area of expertise is fascia research. He graduated from the University of Heidelberg in 1980 with a degree in psychology. 1977-1983 he trained as a Certified-Advanced-Rolfer and 1984-1987 as a

Feldenkrais teacher. In 2006 he received his doctorate in human biology from the University of Ulm. His doctoral thesis on active fascial contractility was awarded with the Vladimir Janda Prize for Musculoskeletal Medicine. Schleip was co-initiator of the first International Fascia Congress 2007 at the Harvard Medical School in Boston (1st Fascia Research Congress), which marked the breakthrough for modern fascia research, as well as the subsequent congresses. He was a member of the scientific committee at all events in this series.

Schleip has been Director of the Fascia Research Group, Division of Neurophysiology at the University of Ulm since 2008. Schleip has been the organizer of the event “CONNECT – Connective Tissues in Sports Medicine” in 2013 and 2017 together with the sports physician Prof. Jürgen Steinacker. He is also Executive Research Director of the European Rolfing Association, Vice President of the Ida P. Rolf Research Foundation, and Board Member of the Fascia Research Society. As a lecturer he teaches in physiotherapy, orthopaedics and training science. He is the author and publisher of specialist publications on the subject of “Fascia” and is present in the media on this subject.

Velocity Based Training
Presented by: Dr. Bryan Mann

Dr. Bryan Mann is currently an Assistant Professor of Kinesiology and Sport Sciences at the University of Miami. He has been in the field of strength & conditioning at the college level since 1998. He has coached at Southwest Missouri State University, Arizona State University, University of Tulsa and the University of Missouri. He had the fortune of working with some athletes who went on to be professional athletes and Olympians.

Mann is most well known for his popularization of various methods of autoregulation of training such as velocity based training and the autoregulatory progressive resistance exercise protocol. Through these methods athletes are able to see rapid increases in strength and power by progressing at their own rates of adaptation. Mann has been involved in researching different aspects of athletic performance beyond just strength and power with his publication “The effects of academic stress on illness and injury in division 1 football,” where they found the likelihood of injury for a starter was actually higher during an academically stressful week as compared to training camp. Mann has been all over the world speaking on these topics and his talents have been utilized by multiple professional sporting organizations in consulting on velocity based training and other topics.

Dosage Prescription Strategies for Off-Season, Pre-Season and In-Season Training Scenarios
Presented by: Derek Hansen

Derek is a NSCA Certified Strength and Conditioning Specialist that has been working with athletes in speed, strength and power sports since 1988. Derek has worked with some of the top performers in the world as a coach and a consultant – including Olympic medallists, world record holders, Canadian National team athletes, professional sports organizations and professional athletes from numerous sports.

In this presentation, Derek will cover the following topics in regards to training prescriptions:

- Identifying Constraints – time, athlete Compliance, injury history, practice, meeting and game demands
- Creating Opportunities – athlete adaptability, building relationships and collaborating with outside networks
- High Intensity Training Components – speed development, explosive power, elastic response and strength development
- Low Intensity Training Components – endurance in strength, aerobic, anaerobic and recovery
- Prioritizing Work – identifying appropriate proportions
- Long Term Planning Priorities – coordinating efforts on practice and education planning with the integration of valuable technology

Supplements with the Greatest Impact on Pre-Workout, Performance, and Recovery
Presented by: Eric Rawson, PhD, FACSM

This presentation shares the good, the bad, and the ugly in regards to:

- Creatine
- Caffeine
- Dietary Nitrate
- Protein
- Beta Alanine

Eric S. Rawson is Chair and Professor of Health, Nutrition, and Exercise Science at Messiah University in Mechanicsburg Pennsylvania. Dr. Rawson received his Ph.D. from the University of Massachusetts, Amherst where he studied under the direction of Dr. Priscilla Clarkson. Over the past two decades, Dr. Rawson's research has focused on the interactions between nutrition and skeletal muscle. In particular, Dr. Rawson has studied

the effects of the dietary supplement creatine on muscle and brain function. Dr. Rawson has been an active member in the American College of Sports Medicine (ACSM) since 1996, has served on the ACSM Board of Trustees, on the ACSM Annual Meeting Program Committee, as Chair of the ACSM National Chapter Nutrition Interest Group, and is a past president of the Mid-Atlantic ACSM regional chapter. Dr. Rawson has delivered more than 180 professional presentations, is co-editor of the text Nutrition for Elite Athletes, co-author of Nutrition for Health Fitness and Sport, and has authored/co-authored numerous articles and book chapters. His research has been funded by the National Institutes of Health and various foundations.

PURCHASE COURSE

Injury Resilience for High-Performance Athletes

Sport Injuries: Patterns,Trends & Current Thinking
Presented by: Dan Pfaff

Dan Pfaff is a world-renowned track and field coach who has trained national, world, and Olympic championship athletes. His impressive background includes directorships of international training centers, coaching staff development, Division I intercollegiate track and field as a head coach, as well as numerous assistant coaching and teaching positions.

During this presentation, you'll learn how to utilize information from an athletic sprinting movement screen specifically designed for speed and quickness in athletes.

Key takeaways include:

- Become a better coach, athlete and/or practitioner
- Become a better consumer of sports medicine services
- Improve communication among athletes, coaches and performance service providers
- Improve understanding of kinesiological factors for wellness
- Improve work quality and capacities
- Reduce acute and chronic injury occurrences
- Reduce lost man hours and competition absences
- Improve coach/athlete reporting skills

The Anatomy of Hamstring Injuries & Prevention
Presented by: Dr. Bryan Heiderscheit, Dr. David Opar, Dr. Silvia Blemker, Dr. Ryan Timmins & Dr. Jack Hickey

A joint presentation from the research group at Australian Catholic University (ACU) discussing the following topics:

- Risk factors for hamstring injury
- A deep look into hamstring muscle injury susceptibility with imaging, modeling, and AI
- Exercise Selection Considerations for HSI Risk Mitigation
- Approaches for the Accelerated Introduction of Eccentric Loading in Hamstring Injury Rehabilitation

ACL Injury/Re-Injury Prevention: Why Monitoring Concentric/Eccentric Force Asymmetries Matters
Presented by: Matt Jordan

Dr. Matt Jordan holds a PhD in Medical Science and a Masters in Exercise Physiology with a specialization in neuromuscular physiology. Matt's PhD research focused on return to sport neuromuscular monitoring for athletes with ACL injury. Over his career, Matt was the personal strength coach to 30 World and Olympic medalists.

In this presentation, Dr. Matt Jordan will provide a detailed overview on how to assess and monitor vertical jump concentric/eccentric force asymmetries for ACL injury and ACL re-injury prevention.

Key takeaways include:

- Identify neuromuscular deficits associated with ACL injuries that can't be seen with the coaching eye alone
- Explore the relationship between vertical jump force asymmetries and ACL injuries
- Discuss strategies for implementing asymmetry monitoring in order to guide return to sport decision making and prevent ACL re-injury
- Present real-world case study examples employing vertical jump force asymmetry monitoring to identify neuromuscular deficits, prevent ACL injuries and optimize return to sport after ACL reconstruction
- Provide considerations for using vertical jump force asymmetry monitoring to improve training program design and training strategies to prevent ACL injuries

Enhancing Injury Resilience & Performance: A Spine Perspective
Presented by: Stuart McGill & Brian Carroll

Dr. Stuart McGill authored 240+ scientific journal papers and mentored over 40 graduate students during this scientific journey. As a consultant, he has provided expertise on low back injury to various government agencies, many corporations and legal firms and professional international athletes and teams worldwide. He has directed the recovery of injured athletes to many championships and records.

Brian Carroll is a world-class powerlifter with over a decade of elite, world-class lifting under his belt. Coming back from a devastating back injury in 2009 that broke multiple bones and compiled with years of destructive mistreatment to his body, most experts said he would never recover. Nonetheless, Brian returned to the pinnacle of world-class lifting, while successfully becoming 100% pain and symptom-free. He is now dedicated to helping

others avoid the same mistakes that he made through seminars, speaking engagements, courses and private and group coaching.

In this presentation, Dr. Stuart McGill and Brian Carroll will discuss:

- Stiffness and mobility: Essential role of core stability for distal athleticism
- Muscle pulsing for speed-strength athleticism
- Building training capacity with spine hygiene and programming
- Assessment: understand injury and pain mechanisms, tuning the body with individual program design
- Programming: Essential drills and progressions Hands-on Practical

Speed-Based Knee Rehab & Return to Play Protocols
Presented by: Irving "Boo" Schexnayder

After this presentation you will be able to:

- Apply neural training principles in the rehabilitation environment.
- Apply eccentric training principles in the rehabilitation environment.
- Remediate performance training to fit the rehabilitation environment.
- Properly progress sprint, jump, and weight training in the knee rehabilitation program.

Irving "Boo" Schexnayder is regarded internationally as one of the leading authorities in training design. He brings 41 years of experience in the coaching and consulting fields, and is most noted for his two tenures on the LSU track and field coaching staff. Regarded as one of the world's premier coaches, he has developed 27 NCAA Champions, has been a part of 13 NCAA Championship teams and a pair of Juco National titles, as well as developing a host of conference champions and All-Americans. Schexnayder has also coached 17 Olympians and multiple World Championship and Olympic medalists.

An educator by profession and a mentor of hundreds of coaches, he has lectured nationally and internationally, and authored several publications on speed/power training programs, biomechanics, track and field specific training and rehabilitation. He has also been very active in the consulting field, working in NFL player development and combine prep from 2002 to the present, and consulting for individuals, high school programs, collegiate programs, professional sports teams, and several foreign NGBs in the areas of training design, jump improvement, speed training, rehabilitations, and specialized programs for football, basketball, soccer, golf, and volleyball.

Who Owns Pain and Range of Motion?
Presented by: Dr. Kelly Starrett

In the modern era of the League, everything is filmed and tracked. Player pain and dysfunction are too often hidden when a player's job and role are on the line. Our modern definition of injury then is, " a player is injured when they cannot perform their role on the team." What should we do then about the injury "gap" between pain and the inability to express movement in normative, physiologically native ranges?

The one place in the building where players are safe to restore and enhance their function is the weight room. Our elite football athletes are masters of compensation and dynamic movement problem solving, and too often position and game coaches are devising drills to teach around movement inefficiency. Lack of ROM or painful movement are signatures of lost power, movement choice, and resiliency.

Fortunately, Strength Coaches have already developed the perfect movement diagnostic system: the weight room. Range of motion and movement control are the foundations of strength and coordination training that can be read, assessed, and adjusted in real time. The weight room does not require movement screening and the parallel assessment languages so vital to the medical staff. Because mobility is so dynamic over the course of the season, the Strength Staff are the best prepared to identify compensation, movement minimums, and key movement vital signs. The only question is: Why is the treatment room so far away from the diagnostic squat rack?

Key Takeaways:

- Identify key motion components in standard strength training exercises.
- Finding opportunities to treat pain by restoring position.
- Making soft tissue work timing make sense.
- Identify positional level movement priorities and minimums.
- Identifying key signatures of compensation as movement prediction tools.

Collision vs. Combat: Building Performance-Impacting Training Systems for the 'Full-Contact' Athlete
Presented by: Dr. Duncan French

This presentation will draw parallels between the various challenges experienced by Football Strength & Conditioning Coaches and those presented to Coaches working with world-class Mixed Martial Artists, fighters, and combative athletes. Most notably, the presentation will seek to address specific considerations relating to physical development of collision and combative athletes against a backdrop of highly complex training demands;

truncated training phases and limited exposure to training impulse; and training around the compromising effects of injury, overreaching, residual fatigue, and sympathetic overload. The presentation will offer first-hand insights into the impactful diagnostic approaches used to build highly efficient decision-making and programming strategy, how truncated training phases influence exercise prescription, and explore the methods adopted at the UFC Performance Institute to prepare athletes for the most combative of sporting arenas.

Learning Outcomes:

- Discuss the highly complex variables that impact strength/power training strategy in world-class combat athletes.
- Review performance-impacting diagnostic models that support decision-making and effective strength/power exercise prescription in elite level combative athletes.
- Use effective decision-making to identify key factors that 'increase the probability of success' (IPOS) within the strength & conditioning domain, then integrate performance initiatives to facilitate IPOS in fighters entering the most combative of sporting arenas.
- Evaluate the strategic benefits of 'effective minimal dose' approaches to the development of strength, power, and energy systems when challenged by finite schedule or training-phase constraints.
- Explore impactful training methods that target beneficial physical and physiological adaptations within athletes populations compromised by injury, non-functional overreaching, or chronic fatigue states.